

5.6

Multiplying and Dividing a Polynomial by a Monomial

FOCUS

- Use different strategies to multiply and divide a polynomial by a monomial.

You can use the strategies you know for multiplying and dividing a polynomial by a constant to multiply and divide a polynomial by a monomial.

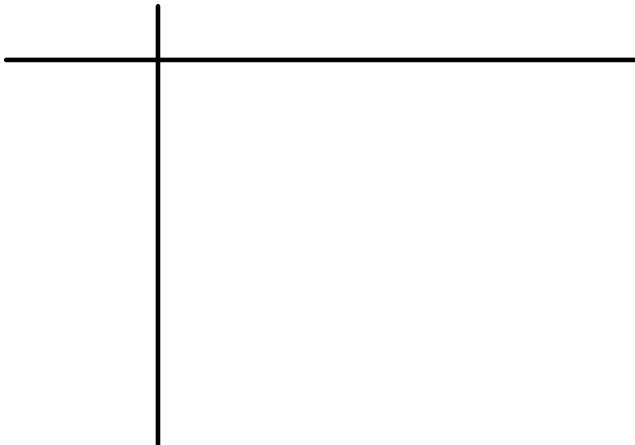
DIVIDING ONLY

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Connect

To divide a polynomial by a monomial, we reverse the process of multiplying these polynomials.

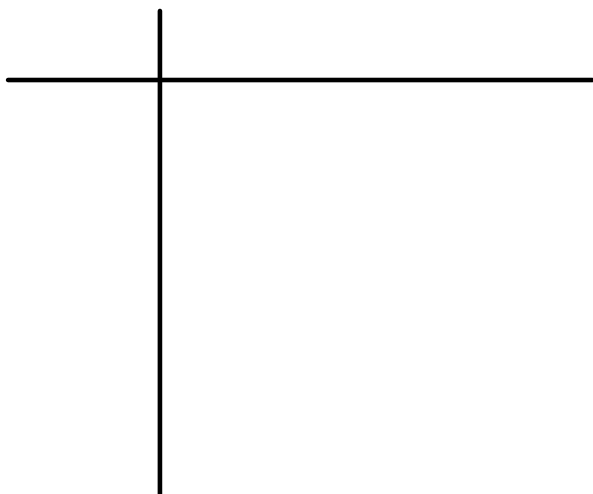
To determine the quotient of $\frac{8x^2}{4x}$, arrange eight x^2 -tiles in a rectangle with one dimension $4x$.



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Connect

To determine the quotient of $\frac{-6w^2 + 9w}{3w}$, arrange six $-w^2$ -tiles and nine w -tiles in a rectangle with one dimension $3w$.



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Example 2

Dividing a Monomial and a Binomial by a Monomial

Determine each quotient.

a) $\frac{-10m^2}{2m}$

b) $\frac{30k^2 - 18k}{-6k}$

SOLUTION:

Tiles

a) $\frac{-10m^2}{2m}$

Distributive Properties

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SOLUTION:

Tiles

b)
$$\frac{30k^2 - 18k}{-6k}$$

Distributive Properties

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YOU TRY! Find the quotient in two ways

$$\frac{8m^2 - 4m}{-2m}$$

SOLUTION:

Tiles

Distributive Properties

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YOU TRY! Find the quotient in two ways

$$\frac{-10x^2 + 5x}{5}$$

SOLUTION:

Tiles

Distributive Properties

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Discuss
the **ideas**

3. How could we check that a quotient is correct?

Reflect

Explain how the strategies for dividing a polynomial by a monomial are related to the strategies for multiplying a polynomial by a monomial. Include examples in your explanation.

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Practice

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